

Amendment and Response

Page 4 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

Remarks

The Office Action mailed 21 April 2003 has been received and reviewed.

Claims 15 and 20 having been amended and claims 21-30 having been added, the pending claims are claims 1-30, with claims 1-16 withdrawn and claims 17-20 currently under examination.

Claims 15 and 20 have been amended to recite the phrase "... an acceptable appearance ..." in place of the phrase "... at most a slight change in appearance ...". Support for this amendment is found in the specification at page 12, lines 15-20.

Claims 21-30 have been added to more fully claim Applicants' disclosed invention. Support for these claims is found in the specification generally and in the claims as filed.

No new matter has been added. as a result of these amendments.

Reconsideration and withdrawal of the rejections in view of the above amendments and the following comments are respectfully requested

Election/Restriction

The Examiner issued a Restriction Requirement under 35 U.S.C. 121 in the above-identified application, grouping the claims as follows: Group I, Claims 1-16 drawn to a stack of siding, classified in class 428, subclass 423.1, and Group II, Claims 17-20, drawn to a method making a fiberboard cement product, classified in class 427, subclass 372.2. A provisional election to prosecute claims 17-20, Group II, was made in response to a telephone conversation with the Examiner on 16 April 2003. The provisional election to prosecute Group II is herein affirmed.

Applicants respectfully request reconsideration and withdrawal or modification of the restriction requirement. It is respectfully submitted that the inventions as claimed can be readily evaluated in one search without placing undue burden on the Examiner. That is, all the claims are so interrelated that a search of one group of claims will reveal art to the others.

Amendment and Response

Page 5 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

Were restriction to be effected between the claims of Groups I and II, a separate examination of the claims in these two groups would require substantial duplication of work on the part of the U.S. Patent and Trademark Office. Clearly, this duplication of effort would not be warranted where these claims of different categories are so interrelated. Therefore, reconsideration and withdrawal of the restriction requirement is respectfully requested.

Specification

Applicants have amended the specification at page 6, line 23, to replace the reference to U.S. Patent No. 4,664,030 with a reference to U.S. Patent No. 4,644,030. Applicants thank the Examiner for pointing out this inadvertent typographical error.

The 35 U.S.C. §112, Second Paragraph, Rejection

The Examiner rejected claim 20 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner found the term "... at most a slight change in appearance ..." to be indefinite.

First of all, the claims do not need to define the phrase, as asserted by the Examiner. Second, the phrase does not have to be art recognized, as asserted by the Examiner. Third, the specification does provide a standard for ascertaining the meaning of the phrase, contrary to the Examiner's assertion. Applicants respectfully assert that the phrase "... at most a slight change in appearance ..." would be understood by one skilled in the art in view of the specification, particularly in view of the rating system provided in the specification at page 12, lines 15-20.

However, in the interest of furthering prosecution of the present application, Applicants have amended claim 20 to include the phrase "... acceptable appearance ..." which is defined in the specification at page 12, lines 15-20.

Amendment and Response

Page 6 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

Additionally, although it is not currently under rejection, claim 15 has also been amended to remove the phrase "... at most a slight change in appearance ..." and replace it with the phrase "... acceptable appearance ..." as was done in claim 20.

Reconsideration and withdrawal of the rejection is respectfully requested.

The 35 U.S.C. §103(a) Rejections

The Examiner rejected claims 17-20 under 35 U.S.C. §103(a) as being unpatentable over Takahashi (U.S. Patent No. 6,103,352, hereinafter Takahashi '352) in view of Harper et al. (U.S. Patent No. 4,637,860) and each of Pears et al. (U.S. Patent No. 5,147,925, hereinafter Pears et al. '925), Overbeek et al. (U.S. Patent No. 4,983,662), and Loewrigkeit et al. (U.S. Patent No. 4,644,030). Applicants respectfully traverse this rejection.

The present claims under examination recite a method of making a fiberboard cement siding product including the steps of providing a fiberboard cement substrate layer, coating a first major surface of the cement substrate with a decorative coating, coating the exposed surface of the decorative coating with a topcoat layer, and curing the topcoat layer to provide a mar and abrasion resistant siding (claim 17).

Takahashi '352 fails to disclose a method of making a fiberboard cement siding product including providing a fiberboard cement substrate layer having a decorative coating on a first major surface of the substrate and a topcoat layer coated and cured on the exposed decorative layer to provide a mar and abrasion resistant siding. That is, there is no teaching or suggestion of Applicants' invention in Takahashi '352.

Takahashi '352 teaches a decorative sheet including a substrate sheet, a contiguous layer which may include a solid print layer and a pattern layer, and a surface protective layer formed in that order over the substrate sheet and cured (column 3, lines 26-30). Takahashi '352 teaches "a decorative sheet possessing high adhesive strength between the surface protective layer and each layer" of, e.g., a solid print layer and pattern layer on a substrate sheet which also provides "excellent scratch resistance" (column 1, lines 20-34). Such decorative sheets are directed to use for imparting "a desired design to the surface of

Amendment and Response

Page 7 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

furniture, wall surface, and floor covering and the like" (column 1, lines 5-8). These decorative materials are suitable for use on a wide and varied number of substrate types, including, for example, papers, plastics, metallic foils, wood plates, gypsum boards, fiber cement boards, ceramic boards, porcelain, earthenware, stoneware, glass, and nonwoven fabrics (column 2, line 33 to column 3, line 26). Takahashi '352 neither teaches nor suggests Applicants' method of making a fiberboard cement siding product that provides a mar and abrasion resistant siding, nor does it teach or suggest Applicants' claimed solution to the particular problems of scratching and marring encountered in the transportation and installation of fiber cement siding.

Applicants also submit that the combination of Takahashi '352 with Harper et al. and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. do not render Applicants' invention obvious.

Harper et al. disclose a process for the manufacture of non-asbestos corrugated sheets suitable for external cladding and roofing (Abstract). There is no teaching or suggestion in Harper et al. of providing a decorative coating on the corrugated sheets or of providing scratch resistance to the decorative coating. Further, Harper et al. teach corrugated sheets suitable for use as roofing or cladding (Abstract); they fail to teach a fiberboard cement siding.

Pears et al. '925, Overbeek et al., and Loewrigkeit et al. fail to provide that which is missing from the combination of Takahashi '352 and Harper et al. Pears et al. '925 disclose acceptable substrates "including wood, metals, glass, cloth, leather, paper, plastics, foam and the like," (column 17, lines 39-41), Loewrigkeit et al. disclose substrates "including wood, metals, glass, cloth, plastics, foam and the like," (column 8, lines 9-11), and Overbeek do not specifically disclose substrates other than glass-plate, which was used in the examples (column 20, line 19, to column 30, line 31). Neither Pears et al. '925, Overbeek et al., nor Loewrigkeit et al. teach or suggest a fiberboard cement siding substrate.

Thus, the combination of Takahashi '352 in view of Harper et al. and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. fails to teach every aspect of Applicants' claims.

Amendment and Response

Page 8 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

To sustain an obvious rejection, there must be some suggestion or motivation in the cited documents themselves or the knowledge generally available to one skilled in the art to modify the document or combine the teachings, there must be a reasonable expectation of success, and the cited documents must teach or suggest all the claim limitations (M.P.E.P. §2143). Applicants respectfully submit that the Examiner has not met this burden, and that the only way the rejection could have been made is by impermissible hindsight reconstruction.

Applicants respectfully assert that the decorated sheets of Takahashi '352 already have "excellent scratch resistance" (column 1, lines 34-35). Thus, there is no motivation to modify Takahashi '352 to obtain scratch resistance on fiberboard cement siding or, as Applicants' claim 17 recites, "mar and abrasion resistant siding." Because there is no reason to modify Takahashi '352, one of skill in the art would certainly not combine Takahashi '352 with Harper et al., which disclose a process for the manufacture of non-asbestos corrugated sheet suitable for external cladding and roofing (Abstract), and additionally with each of Pears et al. '925, Overbeek et al., or Loewrigkeit et al., which each disclose polyurethane compositions to provide a topcoat which provides a mar and abrasion resistant decorative coated substrate.

Further, there is no teaching or suggestion in the documents that such combination would provide a reasonable expectation of success. Applicants have discovered that the polyurethane compositions disclosed in Pears et al. '925, Overbeek et al., and Loewrigkeit et al. may provide a topcoat to Applicants' fiberboard cement siding product. Neither Pears et al. '925, Overbeek et al., nor Loewrigkeit et al. teach or suggest a fiberboard cement siding substrate.

Both the suggestion for combining teachings of prior art documents and the reasonable likelihood of success must be founded in the prior art and not in the Applicants' disclosure. It is submitted that there is no teaching or suggestion that any of the polyurethane compositions of Pears et al. '925, Overbeek et al., or Loewrigkeit et al. would successfully provide a topcoat to a fiberboard cement siding product of Applicants' invention except in Applicants' own specification, as indicated by the Examiner at page 5, lines 1-3 of the present

Amendment and Response

Page 9 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

Office Action. Thus, prior to Applicants' invention, there was no motivation to combine these documents with Takahashi '352 and Harper et al.

Applicants submit that the combination of Takahashi '352 in view of Harper et al. and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. can only occur by impermissibly picking and choosing from the cited documents only so much as to support the Examiner's position. Furthermore, Applicants submit that, according to the foregoing comments, the combination does not render Applicants' claims *prima facie* obvious according to M.P.E.P. §2143. Reconsideration and withdrawal of the rejection is, therefore, respectfully requested.

The Examiner rejected claims 17-20 under 35 U.S.C. §103(a) as being unpatentable over Takahashi et al. (U.S. Patent No. 5,928,778, hereinafter Takahashi et al. '778) in view of Harper et al. and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. Applicants respectfully traverse this rejection.

Takahashi et al. '778, like Takahashi '352, fail to disclose a method of making a fiberboard cement siding product including providing a fiberboard cement substrate layer having a decorative coating on a first major surface of the substrate and a topcoat layer coated and cured on the exposed decorative layer to provide a mar and abrasion resistant siding according to Applicants' claims. Applicants submit, for reasons similar to those indicated above, that Takahashi et al. '778 provides no more than Takahashi '352 in combination with Harper et al., and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. It is asserted that the combination of Takahashi et al. '778 with Harper et al. and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. may only occur using impermissible hindsight reconstruction and, furthermore, that the combination fails to render Applicants' claim *prima facie* obvious.

The Examiner rejected claims 17-20 under 35 U.S.C. §103(a) as being unpatentable over Pears et al. (U.S. Patent No. 6,395,827, hereinafter Pears et al. '827), in view of Harper et al. and each of Pears et al. '925, Overbeek et al. and Loewrigkeit et al. Applicants respectfully traverse this rejection.

Amendment and Response

Page 10 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

Pears et al. '827 teach compositions suitable for surface coating compositions for "paints, lacquers, varnishes and inks," and may be applied to a variety of substrates, including fibre-cement building material (column 11, lines 40-46). However, Pears et al. '827 teach a coating composition for forming coatings without formation of carbon dioxide bubbles, which had been a problem in prior art carboxylic acid-containing compositions (column 1, line 51 to column 2, line 15). There is no teaching or suggestion that the compositions of Pears et al. '827 would provide a mar and abrasion resistant siding as claimed by Applicants. It is therefore submitted that, according to similar arguments as those presented above, that the combination of Pears et al. '827 with Harper et al. and each of Pears et al. '925, Overbeek et al., and Loewrigkeit et al. may only occur using impermissible hindsight reconstruction and that this combination also fails to teach every aspect of Applicants' claims.

Reconsideration and withdrawal of the rejections in view of the above comments is respectfully requested.

Summary

It is respectfully submitted that the pending claims 1-30 are in condition for allowance and notification to that effect is respectfully requested.

Amendment and Response

Page 11 of 11

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for

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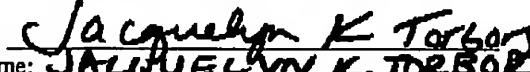
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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 21 day of July, 2003, at 4:20pm (Central Time).

By:



Name: JACQUELYN K. TORBORG

**APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS
INCLUDING NOTATIONS TO INDICATE CHANGES MADE**

Serial No.: 10/000,057

Docket No.: 287.00010101

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted.

In the Specification

The paragraph beginning at page 6, line 20, has been amended as follows:

The presently preferred topcoat for use in the present invention comprises a polyurethane dispersion. Suitable polyurethane dispersions for use in the present invention include those described, for example, in U.S. Pat. Nos. 3,412,054; 4,644,030 [4,664,030]; 4,983,662; 5,147,925; 5,541,251; 5,571,861; 5,637,639; 5,710,209; 5,854,332; 5,872,182; 6,031,041; and 6,063,861 and in WO 00/24837. Other suitable polyurethane dispersions for use in the present invention include those described, for example, in *Self-crosslinkable Urethanes and Urethane/Acrylates*, Verfkroniek Nummer 1 Jan. 1999 and in *New Polymer Synthesis for (self) Crosslinkable Urethanes and Urethane Acrylics*, 4th Nurnberg Congress, Paper 17 by Tennebroek, Geurts, Overbeek and Harmsen.

In the Claims

For convenience, all pending claims are shown below.

1. A stack of siding, comprising:
 - a first coated siding piece comprising an outer topcoat layer, an inner decorative coating layer and a fiberboard cement substrate layer,
 - a second coated siding piece comprising an outer topcoat layer, an inner decorative coating layer and a fiberboard cement substrate layer; and
 - a liner positioned between the first coated siding piece and the second coated siding piece.
2. The stack of siding of claim 1, wherein during normal transportation and installation of

Amendment and Response – Appendix A

Page 2 of 5

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

the siding the siding retains an acceptable appearance that is substantially free of viewable scratches or mars.

3. The stack of siding of claim 1, wherein the siding is stacked in a face-to-face pattern.
4. The stack of siding of claim 1, wherein the siding is stacked in a face-to-back pattern.
5. The stack of siding of claim 1, wherein the fiberboard cement substrate layer comprises wood pulp, silica and cement
6. The stack of siding of claim 1, wherein the fiberboard cement substrate layer has a density of at least 1 g/cm³.
7. The stack of siding of claim 1, wherein the outer topcoat layer has a thickness of at least 8 microns.
8. The stack of siding of claim 1, wherein the outer topcoat layer has a thickness of at least 10 microns.
9. The stack of siding of claim 1, wherein the outer topcoat layer coating selected from the group consisting of polyurethane dispersions, acrylic emulsions, waterborne multi-component urethanes, waterborne multi-component epoxies, UV cured acrylics, visible light cured acrylics, and acrylic waterborne fluoropolymers.
10. The stack of siding of claim 1, wherein the outer topcoat layer comprises a polyurethane dispersion.

Amendment and Response – Appendix A

Page 3 of 5

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

11. The stack of siding of claim 1, wherein the outer topcoat layer is cured by a process selected from the group consisting of: two-part curing mechanism, radiation curing, air drying and heat curing.
12. The stack of siding of claim 1, wherein the outer topcoat layer is cured at a board surface temperature less than 100°C.
13. The stack of siding of claim 1, wherein the outer topcoat layer is cured at a board surface temperature less than 80°C.
14. The stack of siding of claim 1, wherein the liner comprises a foam sheet.
15. (AMENDED) The stack of siding of claim 1, wherein the siding piece exhibits [at most a slight change in] an acceptable appearance after 20 double rubs with medium coarse #2 steel wool pad.
16. The stack of siding of claim 1, wherein the siding piece exhibits at most a minor change in appearance after 20 double rubs with medium coarse #2 steel wool pad.
17. A method of making a fiberboard cement siding product, comprising the steps of:
providing a fiberboard cement substrate layer;
coating a first major surface of the fiberboard cement substrate with a decorative coating;
coating the exposed surface of the decorative coating with a topcoat layer; and
curing the topcoat layer to provide a mar and abrasion resistant siding.
18. The method of claim 17, wherein the curing step comprises a process that does not expose the siding to a board surface temperature in excess of 100 °C.

Amendment and Response – Appendix A

Page 4 of 5

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

19. The method of claim 17, wherein the fiberboard cement substrate layer has a density of at least 1 g/cm³ and comprises wood pulp, silica and cement, the outer topcoat layer comprises a polyurethane dispersion and has a thickness of at least 8 microns.

20. (AMENDED) The method of claim 17, wherein the finished siding piece exhibits [at most a slight change in] an acceptable appearance after 20 double rubs with medium coarse #2 steel wool pad.

21. (NEW) The method of claim 17 wherein the outer topcoat layer has a thickness of at least 10 microns.

22. (NEW) The method of claim 17 wherein the outer topcoat layer coating is selected from the group consisting of polyurethane dispersions, acrylic emulsions, waterborne multi-component urethanes, waterborne multi-component epoxies, UV cured acrylics, visible light cured acrylics, and acrylic waterborne fluoropolymers.

23. (NEW) The method of claim 17 wherein the outer topcoat layer is cured by a process selected from the group consisting of two-part curing mechanism, radiation curing, air drying, and heat curing.

24. (NEW) The method of claim 17 wherein the outer topcoat layer is cured at a board surface temperature less than 100°C.

25. (NEW) The method of claim 17 wherein the outer topcoat layer is cured at a board surface temperature less than 80°C.

26. (NEW) A method of stacking mar and abrasion resistant siding produced by the method of claim 17, comprising:

Amendment and Response – Appendix A

Page 5 of 5

Serial No.: 10/000,057

Confirmation No.: 9505

Filed: 1 November 2001

For: ABRASION RESISTANT COATING FOR STACKS OF FIBER CEMENT SIDING

providing a first piece of siding produced by the method of claim 17;
providing a second piece of siding produced by the method of claim 17; and
providing a liner positioned between the first piece of siding and the second piece of
siding.

27. (NEW) The method of claim 26 wherein the liner comprises a foam sheet.

28. (NEW) The method of claim 26 wherein the first piece of siding and the second piece of
siding are stacked in a face-to-face pattern.

29. (NEW) The method of claim 26 wherein the first piece of siding and the second piece of
siding are stacked in a face-to-back pattern.

30. (NEW) The method of claim 26 wherein during normal transportation and installation of
the siding, the siding retains an acceptable appearance.